

# Link Between Perception of Time and Neurological Wake Signals

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## Introduction

It has been said that time flies when you're having fun. However, it has been long-observed that discomfort and dysphoria result in a distorted perception of time. This paper will explore the possibility of a neurological link between impulses which affect the perception of time and impulses which jolt a sleeping person, awake.

## Abstract

When environment is sub-optimal, when there is discomfort or when a potential threat is sensed, a human being or nearly any mammal is likely to become more aware of its surroundings. The greater the degree of increased alert, the more frequently a person's surroundings tend to be re-evaluated. This, in turn, influences our perception of time.

It seems likely that the same circuitry which is responsible for sustaining this increased level of alert is also responsible for wake signals, which may be inappropriately activated by stimulants ranging from sugar to caffeine, resulting in nightmares and inappropriate wakefulness associated with insomnia.

These processes are likely to be linked due to the fact that a wholistic evaluation of environment first requires a condition of wakefulness. The publication of 12 May 2021 (ibid.) explores howin dreams are likely produced by the the Pre-Motor Cortex as it would have the ability to both emulate visual inputs from the occipital lobe and to block some external stimuli which might induce wakefulness and in order to create neutral or even pleasant inputs in order to support a state of mental restfulness. It is likely that wake signals originate in a different region; almost certainly the basal ganglia; as this region touches upon multiple other regions and seems ideal for activating disparate brain regions.

The activity of the basal ganglia is likely strongly influenced by the presence of stimulants and may also be influenced by the level of activity of the PMC.

In the treatment of insomnia, it would be useful to understand whether a particular case of insomnia is caused by an over-active basal ganglia in isolation or a basal ganglia which is overactive as a result of a need to compensate for an overactive Pre-Motor Cortex.

## Conclusion

If there is a link between the perception of time and insomnia, the objective measurement of the precise skew of a person's perception of time could be

used to quantify the effectiveness of insomnia treatment. A person who is asked to press a button once per second for ten seconds who takes, for example 8.5 seconds to complete this process may be more likely to be an insomniac and a person who takes 10 or more seconds to do this may be predicted to be less likely to be an insomniac. One tantalizing possibility is of using this type of evaluation as a means of re-calibrating a person's perception of time relative to real-time in order to serve as a natural remedy for insomnia in a cognitive-behavioral context.